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A bin lid

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Patents Act 1990

PATENT REQUEST: STANDARD PATENT/PATENT OF ADDITION

I, being the person identified below as the Applicant, request the grant of a patent to the person identified below as the Nominated Person, for an invention described in the accompanying standard complete specification.

Full application details follow.

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[54] Invention Title: A BIN LID

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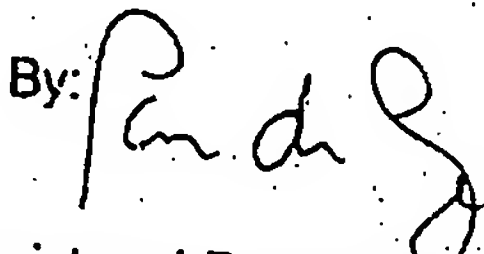
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By:



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TO:

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PATENTS ACT 1990

NOTICE OF ENTITLEMENT

I, Peter Manning FLANAGAN, of 5 Forsyth Ct., Kirwan, in the State of Queensland, 4817, Australia, being the applicant and nominated person in respect of the attached application, state the following -

I am the actual inventor.

Peter Manning FLANAGAN
By his Patent Attorneys
CULLEN & CO.


IAN de JONGE

Date: 13 February 1997



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A industrial bin lid has a forward cover portion to seal off the bin mouth and a rear counterweight portion to balance the bin lid. The cover portion is curved to channel rain water off the lid, and has a lower sealing lip to prevent vermin such as flies, cockroaches and flies from entering into the bin.

AUSTRALIA

Patents Act 1990

**COMPLETE SPECIFICATION
FOR A STANDARD PATENT**

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Invention Title:

A BIN LID

The following statement is a full description of this invention, including the best method of performing it known to me:

This invention relates to a bin lid and particularly relates to a bin lid which can be used on industrial sized bins and which is counterweighted to prevent injury to an operator.

5 Industrial bins are used by restaurants, shopping centres, and most businesses to discard waste products. More often than not the waste products are biological in nature and, over time, decompose to produce
10 foul odours. The foul odours attract a variety of vermin including flies, cockroaches, rats and the like which can pose a health hazard. The industrial bins are emptied fairly regularly, but not sufficiently often to prevent foul odours and the risk of disease.

15 The industrial waste bins are substantial in size and typically have 20 - 50 times the volume of a domestic bin. The waste bins are formed from steel and conventionally have had a steel lid which must be raised to place waste into the bin. The steel lids are very heavy and it is not uncommon for the lid to inadvertently
20 slam down injuring the operator. This occurs especially when the lid is slippery or when the operator is trying to lift too much waste into the bin.

In an attempt to reduce the weight of the bin lid, it is known to provide a split lid system where two
25 (and sometimes more than two) steel bin lids are used. Each lid extends partially across the bin mouth and an operator only needs to lift one of the lids to insert waste into the bin. A disadvantage with the split lid system is that, over time, the lids become damaged and
30 dented and water passes between the lids and into the bin. As well, vermin can pass into the bin and odours can be emitted from the bin all of which are unsatisfactory.

35 The present invention is directed to a bin lid which may overcome at least some of the abovementioned disadvantages or provide the public with a useful or commercial choice.

In one form, the invention resides in a counter

balanced bin lid for industrial waste bins, the lid being sized to extend entirely over the bin mouth, the lid having a forward cover portion adapted to close off the bin mouth, a hinge zone behind the cover portion and where the lid pivots between open and closed positions and a weighted rear portion behind the hinge zone which counter balances the cover portion.

The lid according to the invention is preferably of a single lid design such that split lids are not required. This reduces the possibility of water passing into the bin and reduces foul odours from exiting the bin. However, in some instances a split lid design is envisaged as part of the invention.

To provide lightness to the lid, the cover portion hinge zone and rear portion can be formed integrally, and may be manufactured from plastics such as a thermoplastic. Suitable plastics include polyethylene and polypropylene but it should be appreciated that the bin lid need not be limited to these plastics.

The cover portion may have a top wall and a bottom wall with the top wall being concave. By having a concave top wall, water cannot pool on the bin lid. It is further preferred that the top wall is corrugated or ribbed to further facilitate draining of water, and to provide dimensional stability and rigidity to the bin lid.

The cover portion has a bottom wall, and it is preferred that the bottom wall has a depending flange which is adapted to restrict entry of vermin into the bin. The flange can be a peripheral flange and can extend along the front and side areas of the bottom wall of the bin. The flange overlies the bin mouth when the lid is closed and make it difficult if not impossible for vermin to find their way into the bin.

The bin lid may have a substantial thickness and therefore the top wall and the bottom wall of the cover portions may be spaced apart. To provide lightness to the bin lid, one or more internal voids may be

provided inside the cover portion.

The bottom wall of the cover portion can be formed with one and preferably two to six longitudinal recesses which can function to provide dimensional stability to the lid. It is preferred that the longitudinal recesses are at right angles to the ribs or corrugations which may be on the top wall of the cover portion. This arrangement provides stiffness to the bin lid to prevent unwanted flexing.

The weighted rear portion of the lid may comprise a longitudinal tube. The longitudinal tube may extend entirely along the width of the bin lid, and the inside of the tube can be filled with weight to provide a desired counterbalancing effect. For instance, depending on the size of the front cover portion, the internal tube can be filled with lead shot, sand, gravel, water, or any other suitable weight material. It should also be appreciated that this factor allows the amount of counterbalancing to be adjusted to suit.

The longitudinal tube can be spaced from the cover portion and can be connected thereto by a number of connecting struts.

If desired, a foot pedal can be provided to facilitate opening of the lid. It should be appreciated that while foot pedals have generally not been suitable for industrial bin lids because of their weight, the lid, according to the invention, may now be suitable for use with a foot pedal thereby allowing the lid to be opened without having to touch the lid itself.

As a safety feature, a damping mechanism may be provided to control the rate of descent of the lid. This can be achieved by providing springs or similar types of damping devices.

An embodiment of the invention will be described with reference to the following drawings in which

Figure 1 is an upper view of a lid according to an embodiment of the invention.

Figure 2 is a view of the underside of the lid of Figure 1.

Referring to the drawings, there is shown a bin lid 10. Lid 10 has a forward cover portion 11, a hinge zone 12, and a weighted rear portion 13.

The lid is integrally formed and has a single cover portion 11 which overlies the entire bin mouth. That is, there is no need to provide separate lids in order to reduce weight. (It being appreciated that conventional lids require 16kg of weight to lift the lid). In the embodiment, the lid is formed from plastic such as polyethylene, polypropylene, polyvinyl chloride, and the like.

The cover portion has a top wall 14 and a bottom wall 15. Top wall 14 is convex and therefore curves downwardly to stop water from pooling on the lid. Top wall 14 is ribbed to provide strength.

Bottom wall 15 is substantially flat but has a depending peripheral lip 16 which when the lid is closed, provides a good seal to prevent vermin from entering into the bin.

Bottom wall 15 has two (the number being variable) longitudinal recesses 17 which extend at right angles to the ribs on the top wall. Recesses 17 function to provide strength and stiffness to the bin lid.

Cover portion 11 is substantially hollow and the top wall 14 and bottom wall 15 are spaced apart by a measurable distance such that the inside of the lid is substantially hollow. This adds to the lightness of the lid with the top ribs and the bottom recesses assisting in providing rigidity to the bin lid.

Rear portion 13 in the embodiment is a hollow tube 17 which extends along the bin lid but is spaced from cover portion 11. Five struts 18 attach tube 17 to cover portion 11. Of course, the number of struts can vary if required. Tube 17 is also spaced slightly above cover portion 11 to facilitate its function as a counterweight. The struts are hollow and have a

partition to prevent the weight from passing into the cover.

5 Tube 17 can be filled with weighted material which can be water, sand, gravel, lead shot, or alternatively tube 17 can be formed from solid plastic. An advantage of having the tube hollow is that the amount of weight can be adjusted to fine tune the counterbalancing effect.

10 Hinge zone 12 is where the lid is attached to the bin body and this can be by pivot pins, hinges, and the like.

15 The lid according to the invention minimises stain when opening the lid and inserting rubbish and prevents injury should the lid slam down. The curved lid will not hold water, and has a bottom lip to restrict vermin.

The lid is preferably in a single piece (not two pieces like existing bin lids) and thus there is reduced likelihood of water entering into the bin.

20 The lid, by being made of plastic, is much less noisy than steel lids.

25 It should be appreciated that various changes and modifications may be made to the embodiment described without departing from the spirit and scope of the invention as claimed.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A counter balanced bin lid for industrial waste bins, the lid being sized to extend entirely over the bin mouth, the lid having a forward cover portion adapted to close off the bin mouth, a hinge zone behind the cover portion and where the lid pivots between open and closed positions and a weighted rear portion behind the hinge zone which counter balances the cover portion.
2. The lid of claim 1, wherein the cover portion, hinge zone and rear portion are integrally formed.
3. The lid of claim 1 or claim 2, wherein the lid is formed from plastic.
4. The lid of any one of the preceding claims, wherein the cover portion has a top concave wall to prevent water from pooling on the top wall.
5. The lid of any one of the preceding claims, wherein the cover portion has a top wall which is ribbed.
6. The lid of any one of the preceding claims, wherein the cover portion has a bottom wall formed with a depending flange adapted to restrict entry of vermin into the bin.
7. The lid of claim 6, wherein the flange is a peripheral flange.
8. The lid of any one of the preceding claims, wherein the top wall and the bottom wall of the cover portion are spaced apart to define one or more internal voids in the lid.
9. The lid of any one of the preceding claims, wherein the bottom wall of the cover portion is formed with at least one longitudinal recess.
10. The lid of any one of the preceding claims, wherein the weighted rear portion comprises a longitudinal tube which can be filled with weight to provide a desired counter balancing weight.
11. The lid of claim 10, wherein the tube is spaced from the cover portion and is connected thereto by one of more struts.
12. a lid substantially as hereinbefore described

8

with reference to the drawings.

DATED this 13th day of February 1997

Peter Manning FLANAGAN
By his Patent Attorneys
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ABSTRACT

5 A industrial bin lid has a forward cover portion to seal off the bin mouth and a rear counterweight portion to balance the bin lid. The cover portion is curved to channel rain water off the lid, and has a lower sealing lip to prevent vermin such as flies, cockroaches and flies from entering into the bin.

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Fig 1

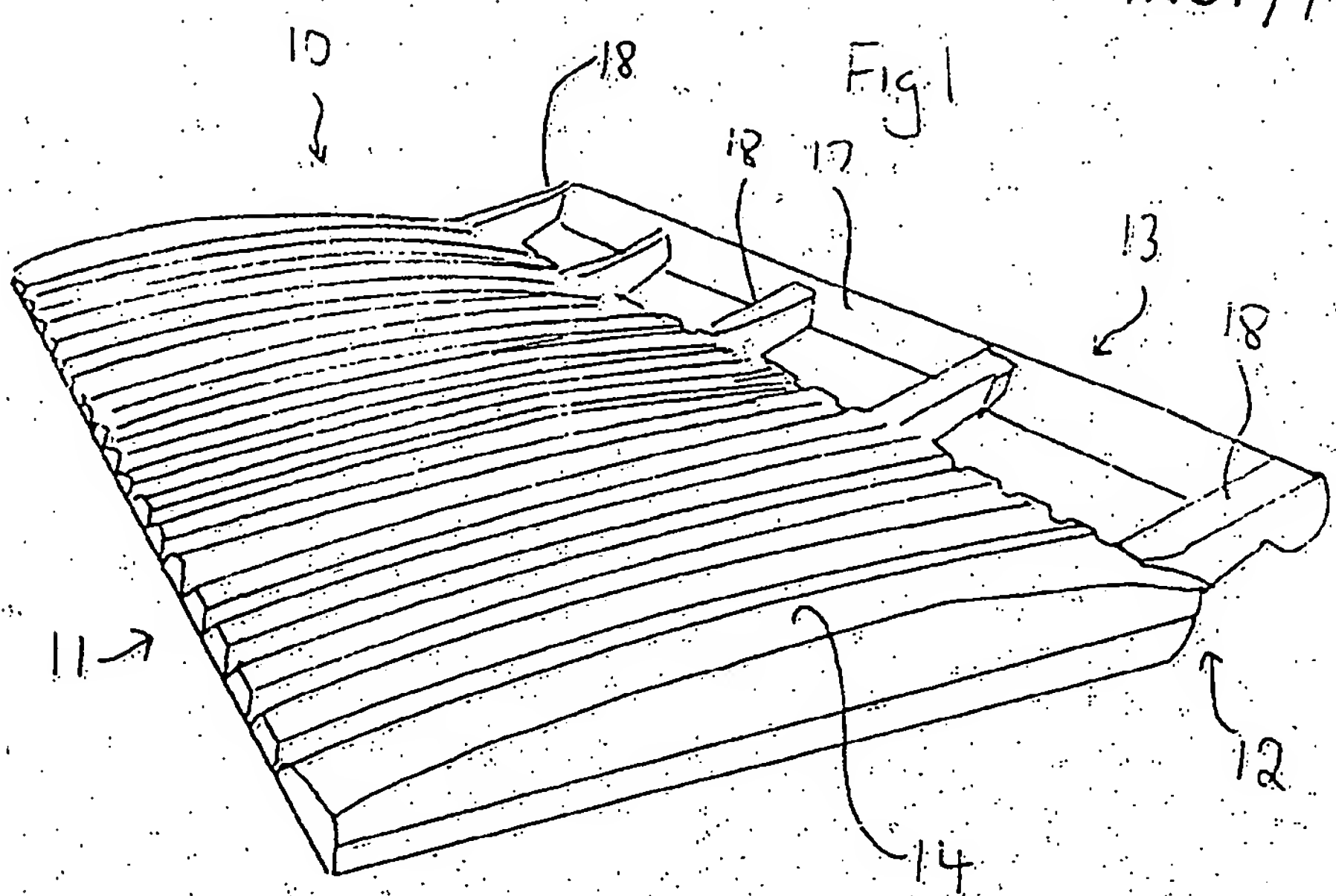


Fig 2

